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09/751,129	12/29/2000	Russell E. Henning	INTL-0501-US (P10387)	9172

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2613	3

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/751,129	HENNING, RUSSELL E.
	Examiner	Art Unit
	Andy S. Rao	2613

-- Th MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-30 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-30 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings.

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 27-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun et al., (hereinafter referred to as "Sun").

Sun discloses an apparatus (Sun: figures 6-7) comprising: a first block to perform error concealment on an encoded video signal to provide an output signal (Sun: column 3, lines 10-20); a second block to determine at least one channel characteristic (Sun: column 12, lines 53-67; column 13, lines 1-13); and a third block to perform resilience on the output signal based on at

least one channel characteristic and provide a modified video signal (Sun: column 10, lines 20-30), as in claim 27.

Regarding claim 28, Sun discloses transmitting the modified signal to a storage device (Sun: column 12, lines 45-53), as in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-2, 6-8, 19-23, 25-26, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al., (hereinafter referred to as "Sun") in view of Chien et al., (hereinafter referred to as "Chien").

Sun discloses an apparatus comprising: a first block to process a P-type frame in a video bitstream (Sun: column 7, lines 50-65; column 9, lines 45-56); and a second block to process a B-type frame in the video bitstream (Sun: column 10, lines 5-10 & 40-67), as in claim 1. However, Sun fails to disclose using first and second error resiliency techniques with the respective first and second blocks. Chien discloses a spatial error concealment apparatus with differing error resiliency techniques based on motion vector correlation (Chien: column 7, lines 45-62; column 8, lines 1-45) in order to efficiently conceal/correct propagated errors in a sequence of video frames (Chien: column 2, lines 53-65). Accordingly, given this teaching, it

would have been obvious for one of ordinary skill in the art to incorporate Chien's differing error concealment techniques for improved error resiliency into the Sun apparatus in order to efficiently conceal/correct propagated errors in a sequence video frames. The Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, has all of the features of claim 1.

Regarding claim 2, the Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, has the first block also processing I frames (Sun: column 10,lines 5-10), as in the claim.

Regarding claim 6, the Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, has the second block insert fewer error resilience bits in the video bitstream than the first block (Sun: column 11, lines 7-35), as in the claim.

Regarding claims 7-8, the Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, has third and fourth blocks for differing error concealment techniques (Sun: column 6, lines 23-50), as in the claims.

Sun discloses an apparatus comprising: a first block to process a P-type frame in a video bitstream (Sun: column 7, lines 50-65; column 9, lines 45-56); and a second block to process a B-type frame in the video bitstream (Sun: column 10, lines 5-10 & 40-67), as in claim 19. However, Sun fails to disclose using first and second error resiliency techniques with the respective first and second blocks. Chien discloses a spatial error concealment apparatus with differing error resiliency techniques based on motion vector correlation (Chien: column 7, lines 45-62; column 8, lines 1-45) in order to efficiently conceal/correct propagated errors in a sequence of video frames (Chien: column 2, lines 53-65). Accordingly, given this teaching, it

would have been obvious for one of ordinary skill in the art to incorporate Chien's differing error concealment techniques for improved error resiliency into the Sun apparatus in order to efficiently conceal/correct propagated errors in a sequence video frames. The Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, has all of the features of claim 19.

Regarding claim 20, the Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, has a variable length decoder block (Sun: column 9, lines 15-21), as in the claim.

Regarding claim 21, the Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, has the second error concealment technique comprising a block copy (Chien: column 4, lines 35-42), as in the claim.

Sun discloses a method comprising: receiving a video stream (Sun: column 7, lines 39-52); performing a first processing step on a P-type frame in a video bitstream (Sun: column 7, lines 50-65; column 9, lines 45-56); performing a second processing step on a B-type frame in the video bitstream (Sun: column 10, lines 5-10 & 40-67), as in claim 22. However, Sun fails to disclose using first and second error resiliency techniques with the respective first and second processing step. Chien discloses a spatial error concealment method with differing error resiliency techniques based on motion vector correlation (Chien: column 7, lines 45-62; column 8, lines 1-45) in order to efficiently conceal/correct propagated errors in a sequence of video frames (Chien: column 2, lines 53-65). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art to incorporate Chien's differing error concealment techniques for improved error resiliency into the Sun method in order to efficiently

conceal/correct propagated errors in a sequence video frames. The Sun method, now incorporating Chien's differing error resiliency technique for P and B frames, has all of the features of claim 22.

Regarding claim 23, the Sun method, now incorporating Chien's differing error resiliency technique for P and B frames, performing error resiliency on an I frame (Sun: column 10, lines 25-30), as in the claim.

Regarding claim 25, the Sun method, now incorporating Chien's differing error resiliency technique for P and B frames, has the second technique insert fewer error resilience bits into the video bitstream than the first technique (Sun: column 10, lines 40-65), as in the claim.

Regarding claim 26, Sun method, now incorporating Chien's differing error resiliency technique for P and B frames, has using a first and second error concealment technique being performed in P and B frames, respectively (Chien: column 8, lines 10-45), as the claim.

Sun discloses an apparatus (Sun: figures 6-7) comprising: a first block to perform error concealment on an encoded video signal to provide an output signal (Sun: column 3, lines 10-20); a second block to determine at least one channel characteristic (Sun: column 12, lines 53-67; column 13, lines 1-13); and a third block to perform resilience on the output signal based on at least one channel characteristic and provide a modified video signal (Sun: column 10, lines 20-30), as in claim 29-30. However, Sun fails to disclose using first and second error resiliency techniques with P and B frames in accordance with the first and third blocks. Chien discloses a spatial error concealment apparatus with differing error resiliency techniques based on motion vector correlation (Chien: column 7, lines 45-62; column 8, lines 1-45) in order to efficiently conceal/correct propagated errors in a sequence of video frames (Chien: column 2, lines 53-65).

Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art to incorporate Chien's differing error concealment techniques for improved error resiliency into the Sun apparatus in order to efficiently conceal/correct propagated errors in a sequence video frames. The Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, has all of the features of claims 29-30.

7. Claims 3-5, 9, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al., (hereinafter referred to as "Chien") as applied to claims 1 and 22 above, and further in view of Webb.

The Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, a majority of the features of claims 3-4, as discussed with regards to claim including having the second block comprise a variable length coder (Sun: column 3, lines 40-57), however, the Sun-Chien combination fails to disclose the use of application of resynchronization markers as in the claims. Webb discloses the use of reversible variable length codewords (Webb: column 4, lines 55-68; column 5, lines 1-30) for the application of resynchronization markers (Webb: column 2, lines 20-35) in order to process video with uncorrectable errors (Webb: column 1, lines 30-65). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate Webb's reversible variable length codewords for the application of resynchronization markers into the Sun-Chien combination in order to have the Sun-Chien combination be able to process video streams with uncorrectable errors. The Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames and Webb's use of reversible variable length codewords for the application of resynchronization markers, has all of the features of claims 3-4.

The Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, has a majority of the features of claim 5, however, the Sun-Chien combination fails to disclose the use of application of resynchronization markers at differing intervals as in the claim. Webb discloses the use of reversible variable length codewords (Webb: column 4, lines 55-68; column 5, lines 1-30) for the application of resynchronization markers (Webb: column 2, lines 20-35) at differing intervals (Webb: column 12, lines 23-55) in order to process video with uncorrectable errors (Webb: column 1, lines 30-65). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate Webb's reversible variable length codewords for the application of resynchronization markers into the Sun-Chien combination in order to have the Sun-Chien combination be able to process video streams with uncorrectable errors. The Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames and Webb's use of reversible variable length codewords for the application of resynchronization markers at differing intervals, has all of the features of claim 5.

The Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames, a majority of the features of claim 9, as discussed with regards to claim including a data partitioning block (Sun: column 3, lines 40-57) and a header extension code block (Sun: column 4, lines 45-67). However, the Sun-Chien combination fails to disclose the use application of a reversible variable length coder block and a resynchronization marker block for application of resynchronization markers as in the claim. Webb discloses the use of reversible variable length codeword block (Webb: column 4, lines 55-68; column 5, lines 1-30) and a resynchronization marker block (Webb: column 2, lines 20-35) in order to process video with uncorrectable errors (Webb: column 1, lines 30-65). Accordingly, given this teaching it would

have been obvious for one of ordinary skill in the art to incorporate Webb's reversible variable length codeword block and resynchronization marker block into the Sun-Chien combination in order to have the Sun-Chien combination be able to process video streams with uncorrectable errors. The Sun apparatus, now incorporating Chien's differing error resiliency technique for P and B frames and Webb's use of reversible variable length codeword block and a resynchronization marker block, has all of the features of claim 9.

The Sun method, now incorporating Chien's differing error resiliency technique for P and B frames, has a majority of the features of claim 24, however, the Sun-Chien combination fails to disclose the use of application of resynchronization markers at differing intervals as in the claim. Webb discloses the use of reversible variable length codewords (Webb: column 4, lines 55-68; column 5, lines 1-30) for the application of resynchronization markers (Webb: column 2, lines 20-35) at differing intervals (Webb: column 12, lines 23-55) in order to process video with uncorrectable errors (Webb: column 1, lines 30-65). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate Webb's reversible variable length codewords for the application of resynchronization markers into the Sun-Chien combination in order to have the Sun-Chien combination be able to process video streams with uncorrectable errors. The Sun method, now incorporating Chien's differing error resiliency technique for P and B frames and Webb's use of reversible variable length codewords for the application of resynchronization markers at differing intervals, has all of the features of claim 24

8. Claims 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al., (hereinafter referred to as "Sun") in view of Chien et al., (hereinafter referred to as "Chien") as and further in view of Webb.

Sun discloses a processor containing instructions that enable the processor to comprising: receive a video stream having at least a first type of frame (Sun: column 7, lines 50-65; column 9, lines 45-56) and a second type of frame (Sun: column 10, lines 5-10 & 40-67), as in claim 10. However, Sun fails to disclose using first and second error resiliency techniques, wherein the first technique discloses the further use of resynchronization markers at a first interval and the second technique .Chien discloses a spatial error concealment apparatus as executed on a machine readable storage media containing instructions (Chien: column 4, lines 60-68; column 5, lines 1-3) for performing differing error resiliency techniques based on motion vector correlation on first and second frames (Chien: column 7, lines 45-62; column 8, lines 1-45) in order to efficiently conceal/correct propagated errors in a sequence of video frames (Chien: column 2, lines 53-65). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art to incorporate Chien's differing error concealment techniques as executed in software for improved error resiliency into the Sun apparatus in order to efficiently conceal/correct propagated errors in a sequence video frames. The Sun processor, now incorporating Chien's differing error resiliency technique for the first and second frames as executed in software, has a majority all of the features of claim 10, however, the Sun-Chien combination fails to disclose the use of application of resynchronization markers as in the claim. Webb discloses the use of reversible variable length codewords (Webb: column 4, lines 55-68; column 5, lines 1-30) for the application of resynchronization markers (Webb: column 2, lines 20-35) in order to process video with uncorrectable errors (Webb: column 1, lines 30-65). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate Webb's reversible variable length codewords for the application of resynchronization

markers into the Sun-Chien combination in order to have the Sun-Chien combination be able to process video streams with uncorrectable errors. The Sun processor, now incorporating Chien's differing error resiliency technique for the first and second frames as executed in software and Webb's use of reversible variable length codewords for the application of resynchronization markers, has all of the features of claim 10.

Regarding claim 11, the Sun processor, now incorporating Chien's differing error resiliency technique for the first and second frames as executed in software and Webb's use of reversible variable length codewords for the application of resynchronization markers, has the first error resilience technique to process a P frame (Chien: column 7, lines 45-61).

Regarding claims 12-13, the Sun processor, now incorporating Chien's differing error resiliency technique for the first and second frames as executed in software and Webb's use of reversible variable length codewords for the application of resynchronization markers has the second error resilience technique to process a B frame (Chien: column 7, lines 45-61), as in the claims.

Regarding claim 14, the Sun processor, now incorporating Chien's differing error resiliency technique for the first and second frames as executed in software and Webb's use of reversible variable length codewords for the application of resynchronization markers at differing intervals, has inserting the resynchronization markers at differing intervals (Webb: column 12, lines 23-55), as in the claims.

Regarding claim 15, the Sun processor, now incorporating Chien's differing error resiliency technique for the first and second frames as executed in software and Webb's use of reversible variable length codewords for the application of resynchronization markers at

differing intervals, has the first error concealment technique is different from the second error concealment technique (Chien: column 8, lines 10-45), as in the claim.

Regarding claim 16, the Sun processor, now incorporating Chien's differing error resiliency technique for the first and second frames as executed in software and Webb's use of reversible variable length codewords for the application of resynchronization markers at differing intervals, has inserting fewer error resilience bits into the video stream for the B-type frame than for the P-type frame (Sun: column 10, lines 30-65), as in the claim.

Regarding claim 17, the Sun processor, now incorporating Chien's differing error resiliency technique for the first and second frames as executed in software and Webb's use of reversible variable length codewords for the application of resynchronization markers at differing intervals, has variable length encoding (Sun: column 7, lines 15-30), as in the claim.

Regarding claim 18, the Sun processor, now incorporating Chien's differing error resiliency technique for the first and second frames as executed in software and Webb's use of reversible variable length codewords for the application of resynchronization markers at differing intervals, has applying resynchronization markers to the video for B frames (Webb: column 12, lines 25-60), as in the claim.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yoo discloses a method and apparatus for transmitting and recovering video signals. Chai discloses an apparatus and method for data partitioning to improve error resilience.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-305-4700.

Andy S. Rao
Primary Examiner
Art Unit 2613

ANDY RAO
PRIMARY EXAMINER

asr
September 12, 2003